aspiration will be found to exhibit strong power of digestion. The absence of hooklets will serve to distinguish it from the fluid of an hydatid cyst. The significance of persistent clay-colored stools as a symptom of liver disease is undoubtedly modified by a consideration of Dr. Walker's cases, and the presence or absence of jaundice concomitantly with this symptom should be carefully looked for. The clay-colored stools apparently owe their color, not entirely to the absence of pigment, but largely to the presence of unabsorbed fats. In healthy persons from 6 to 10% of the ingested fats are found in the fœces, and in cases of biliary obstruction from 52 to 78% (Müller). The pancreatic juice acts upon the fats, but not sufficiently to render them absorbable without the presence of bile. On the other hand in pancreatic obstruction the fats lack the action of the pancreatic fluid, and if Dr. Walker be right in his contention that the pancreatic secretion is the efficient cause in the production of hydrobilirubin, the stools will be equally as in biliary obstruction, clay-colored, both from excess of fat and absence of pigment. H. CAMPBELL POPE.

STUDIES IN ACTINOMYCOSIS.[1]

The cases of human actinomycosis are as yet so limited that Dr. Baracz, up to December, 1887, has only been able to collect 107 recorded cases. He reports the three following cases:

CASE I. Male, æt. 30 years, cab-driver, states that in December, 1886, he suffered from toothache during several weeks, and that he went to a dentist and had the painful tooth extracted. Soon after he noticed a slowly growing painful tumor on the face, corresponding to the place from which the tooth had been removed. This tumor interfered with the motions of the jaw.

The patient was seen by the author on January 9, 1887. Examination of the mouth showed that all the remaining lower molar teeth on

[1] Transmissibility of Actinomycosis from Man to Man, by DR. ROMAN V. BARACZ (Lemberg). *Wiener Medizinische Presse*, No. 1, 1889.

Actinomycosis of the Base of the Skull. By DR. NASSE (Berlin). *Deutsche Medizinische Wochenschrift*, No. 5, 1889.

the left side were carious; also his right lower molars. The left lower incisors and premolars are wanting. In the upper jaw there are only six healthy teeth; all that remains of the others are carious roots.

On the skin covering the left lower jaw, between the angle and the border of the same, there is a walnut-sized tumor, the surface of which is soft and reddened. The borders of the tumor are hard, and it is not movable on the bone. The teeth can only be separated 1 cm.

The unusual seat of the abscess, the occupation of the patient and the gradual growth of the tumor pointed toward actinomycosis. The patient does not sleep in the stable, his horses are healthy, and he does not come in contact with other animals. Near his stables are some cow sheds, but the cows are perfectly healthy.

The swelling was incised at the fluctuating point, and the contents were a little pus mingled with sputum and a large number of hard yellowish masses about the size of poppy seeds. The wound was washed out with 5% carbolic and packed with iodoform gauze. Microscopical examination of the yellow masses showed typical actinomycosis fungi. The wound healed perfectly, and patient was not seen again till March, 1888, when he was in perfect health and showed no signs of a return of the disease.

CASE II. Female, æt. 23 years, the betrothed of the first patient, was seen on July 17, 1887. Three weeks previously a small painful tumor had formed on the gums, and opened itself spontaneously; nevertheless the face had remained swollen. Under the skin corresponding to the middle of the alveolar process of the lower jaw is an abscess about the size of a walnut, which seems to be divided into two parts by a septum. The skin over the abscess is reddened. On the lower jaw, within the mouth, is a tumor about the size of an egg, and it seems intimately connected with the bone. The first three left lower molar teeth are carious; the two lower right molars are also in the same condition. In the upper jaw the left canine, the two right incisors and the second molar are in the same condition.

The abscess was opened and a little serous fluid escaped, mingled with numerous yellow poppy-seed-like masses. The wound was washed out with 5% carbolic and packed with iodoform gauze

The patient would not permit a radical operation. Microscopical examination showed typical actinomycosis fungi. The patient was not seen for a month, and the tumor connecting with the abscess was smaller, but the inflammatory conditions around the abscess were unchanged. Abscess was washed out with 5% carcboil and dressed with iodoform. The patient was told to return in three days, but was not seen till July 28 of the following year, when she presented an indrawn scar in the middle of the alveolar process. Above the scar and to its outer side, a small hard flat tumor about the size of a walnut can be felt through the skin. The scar is not movable over the tumor, which is perfectly painless; there is an enlarged lymphatic gland under the jaw. Patient complains that since cicatrization of the abscess her face swells every morning, but that the swelling disappears in a few hours. Patient was given Burrows' solution (plumbi acet., 70; alum. crud., 40; aq., 600), to be applied during the night. She was told to return in one week. When seen again the swelling over the bone was much smaller, and the indurated lymphatic had entirely disappeared, as well as the swelling of the cheek.

The patient was not seen again for six weeks. On examination of the place where the abscess had been, there was only a small hardened irregularity of the bone. Patient then had an alveolar abscess over left upper molar, but refused to have the abscess opened. Patient was seen on December 31, and appeared perfectly well.

The etiology of the first case is not clear as to the manner in which the fungi entered the organism—if in the food, or by the instrument used in the extraction of the teeth. The first of the two ways is the most probable. As for the method of invasion in the second case, it was communicated directly by kissing, as the patient herself was the first to suggest.

Dr. Baracz calls attention to his second case, stating that it is the only one on record where actinomycosis has been transmitted from man to man by the mouth.

CASE III. Woman, æt. 30 years, wife of a railroad employe. The patient had a dental fistula ten years ago, which healed perfectly after the removal of the offending tooth, leaving only a small scar on the

right cheek. Four weeks ago there appeared over the scar a small bluish-red spot, which was accompanied by much swelling of the cheek and some inability to open the mouth. The swelling increased for some days, and the mouth could only be opened ½ cm. A dentist removed the roots of the lower molar teeth on the right side, whereupon the swelling of the cheek began to diminish, but an abscess formed around the old cicatrix. The patient was seen by Dr. Baracz on August 29, 1888. There was a small abscess in the cellular tissue of the right cheek, about the middle of the right lower alveola process. The skin over it was reddened, thined, and fluctuated. No thickening of the alveolar process. The patient had quite a growth of hair on the cheek, and epilated or shavad regularly. She refused to have the abscess opened that day.

Two days later the patient was seen again, when the abscess was opened and scraped with a sharp spoon. The contents were a mucoid fluid and several yellowish poppy-seed-like masses. The abscess cavity was washed out with 5% carbolic and packed with iodoform gauze.

The wound healed in one week, leaving only a small scar. Microscopical examination of the small bodies showed typical actinomycosis.

The patient was seen three months later, and was in perfect health.

The patient lived in a healthy part of the city, never came in contact with cattle, never visited any stables, but opposite her dwelling was a hay loft and stable. The author gives three hypotheses for the mode of invasion in this case:

First. Owing to the nearness of the stable and the number of flies, the germs might have been carried by one of the latter, and as the patient epilated often and the epidermis often removed over the old scar by this process—and deposited in that place and found a suitable place for proliferation.

Second. That the fungi might have entered the mouth, as opposite the patient's dwelling there was a hay loft and the rooms were ventilated daily. In this case the fungi must have lodged in one of the carious roots which were removed at the time of the beginning of the

abscess and penetrated through the lymph channels into the cellular tissue of the cheek.

Third. That the fungi might have been brought to the scar in rain water with which the patient washed herself daily, and which rain water was collected in a tub in the yard.

The etiology of this case is not perfectly clear.

These three cases belong to the group of mild cases which have been described by Heller, Kapper and others.

In this connection the case of actinomycosis of the base of the skull reported by Dr. Nasse, at a meeting of the Berlin Medical Society, January 23, 1889, with specimens, is of interest The patient, æt. 19 years, peasant, complained in August, 1888, of pain in the mouth, which pain did not disappear after the removal of the carious teeth which were thought to be its cause. Gradually there was swelling of the cheek and parietal region, and after a time an abscess formed, and was opened. It healed, leaving a fistula. Little by little small abscesses formed and were opened, but all left suppurating fistulæ. On November 30, 1888, the patient entered the hospital. At that time he had a hard tense swelling, extending from the beginning of the left temporal muscle downwards below the lower jaw. In front of the sterno-mastoid muscle was an abscess about the size of a walnut., Teeth healthy. Patient had fever and severe headache. In the beginning of December the abscess of the neck was opened and scraped out, and actinomycosis lumps were found. After the operation the fever still continued and the wound suppurated. Then a swelling of the right temporal and facial region appeared. In a short time an abscess formed under the eye, at the internal angle of the right orbit, which when opened was found to contain some actinomycosis granules. Two days later a profuse purulent discharge escaped from the right nostril, and two days later, December 18, the patient died.

Post mortem examination proved the diagnosis of actinomycosis. There was extensive suppuration of the whole base of the skull and suppurative meningitis. F. C. Husson.